REMARKS

Reconsideration and allowance of the present application in light of the following remarks are respectfully requested. No claims having been cancelled or added, the Applicants respectfully submit that claims 1, 2, 4-14, and 20-31 remain pending in the present application.

The amendment filed May 29, 2001 stands objected to under 35 U.S.C. § 132 for allegedly introducing new matter. The Applicants respectfully contend that the specification as filed, pages 16-17, Figure 3, and original claim 6, support the fact that the heat treatment step brings the material having a lower ionization potential to the surface where it forms an oxide. In particular, the Auger results depicted in Fig. 3 show that the O to Ni ratio in the surface layer is approximately 2:1, consistent with the formation of nickel oxide (NiO_X) at the surface. The Applicants respectfully contend, therefore, that claims 29 and 31 did not introduce new matter, are not objectionable under 35 U.S.C. § 132, and need not be cancelled. The Applicants, therefore, respectfully request that this objection be withdrawn.

Claims 12-14, 21, 27, 28 and 30 are rejected under 35 U.S.C. § 102(e) as being anticipated by Nakamura et al ('422) ("Nakamura"). The Applicants respectfully submit that the above amendment to claim 12 is sufficient to overcome this rejection. Specifically, the Applicants contend that Nakamura does not disclose a light-emitting semiconductor device in which a high contact resistance area is formed between the first electrode layer and the surface layer of the p-type semiconductor directly under the pad that will block vertical electric current and force the current to flow in a lateral direction. The Applicants, therefore, respectfully contend that Nakamura does not anticipate the present invention and request that this rejection be withdrawn.

Claims 1, 2, 4-11, 20 and 22-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakamura in view of Manabe et al. ("Manabe") and Nakamura et al. ('350) ("Nakamura II"). The Applicants respectfully contend that the proposed combination of Nakamura and Manabe is inconsistent with the teachings of Nakamura. Specifically, the Applicants note that Nakamura teaches away from the use of aluminum electrodes and pads because of the resulting degradation of the luminous transmittivity. The Applicants respectfully contend, therefore, that one of ordinary skill in the art reading Nakamura would not have been motivated to turn to and incorporate the protective aluminum film taught by Manabe. The Applicants respectfully contend that, absent such motivation, the proposed combination does not support the present rejection and respectfully request that it be withdrawn. Further, the Applicants respectfully submit that the cited references, whether individually or in combination, do not teach a light emitting semiconductor device wherein a portion of the protective film is protected from being etched when the portion of the protective film comprising the central portion is etched so that a portion of the protective film is left on an upper surface of the third metal layer except in the central portion. The Applicants, therefore, respectfully request that this rejection be withdrawn.

In view of the foregoing amendments and remarks, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Five Times Amended) A light-emitting semiconductor device having a Group III nitride compound semiconductor comprising:

a surface layer made of p-type conduction:

an electrode layer formed on said surface layer: and

an electrode pad comprising:

a first metal layer formed on said electrode layer formed on said surface layer, a second metal layer formed on said first metal layer, and a third metal layer formed on said second metal layer: and

a protective film over said third metal layer and entirety of said electrode layer, said protective film leaving exposed a central portion of said third metal layer; said electrode layer being capable of passing an emitted light:

said electrode pad being capable of supplying a current to said electrode layer: and

wherein said second metal layer is made of gold (Au), said first metal layer comprises a material that has an ionization potential lower than gold (Au), and said third metal layer comprises aluminum (A1) that has an adhesiveness to said protection film which is stronger than gold (Au) and etching an inner side of said protective film is prevented when a portion of said protective film corresponding to said central portion is etched and said protective film is left on an upper surface of said third metal layer except for said central portion.

12. (Three Times Amended) A light-emitting semiconductor device having a Group III nitride compound semiconductor comprising:

a surface layer made of p-type semiconductor;

a multi-layered electrode layer comprising a first electrode layer formed on said surface layer and a second electrode layer formed on said first electrode layer;

an electrode pad covering a portion of said second electrode layer and leaving another portion of said second electrode layer uncovered; and

wherein said first electrode layer comprises a material which has an ionization potential lower than that of said second electrode layer, said second electrode layer comprises a material which has an ohmic characteristic to said semiconductor better than that of said first electrode layer, and the portion of said material of said second electrode layer which is uncovered by said electrode pad is distributed more deeply into said surface layer than that of said first electrode layer by heat treatment in atmosphere comprising oxygen and provides a contact resistance between said electrode layer and said surface layer lower than said portion covered with said electrode pad, and a high contact resistance area is formed between said first electrode layer and said surface layer of said p-type semiconductor right under said pad, electric current in downward direction is blocked at said high contact resistance area and flows to a lateral direction.

END OF APPENDIX